

Two-Phase Digital Stepper Motor Driver

LASD2

2-Phase Stepper Motor Driver

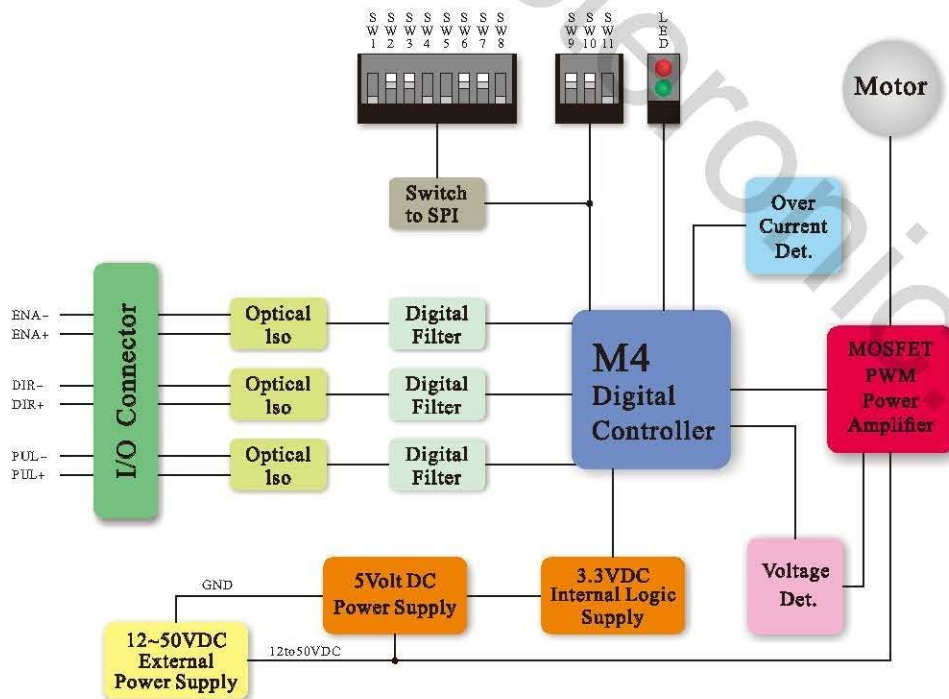
LASD2

■ Introduction

LASD2 is a 2-Phase Stepper Motor Driver with super low-noise and large torque. Its extraordinary quiet and high-speed effects have been trusted and praised by customers. This kind of driver suits 28, 35, 39, 42 2-phase stepper motor etc. The maximum output current is 2.5A. Stepper drive is the most competitive high performance product currently on sale.

- New ARM core M4 32-bit processor
- Maximum output current - 2.5A
- Maximum input voltage 50VDC
- Matching Motor parameter selection for best results
- Self-test function detects motor and drive status
- Maximum input pulse frequency: above 2MHZ
- Maximum number of subdivisions: 25600
- Double pulse and pulse & direction mode switching
- Pulse, direction, enable 5~24V input

■ Functional Diagram



■ Electrical properties and environmental indexes

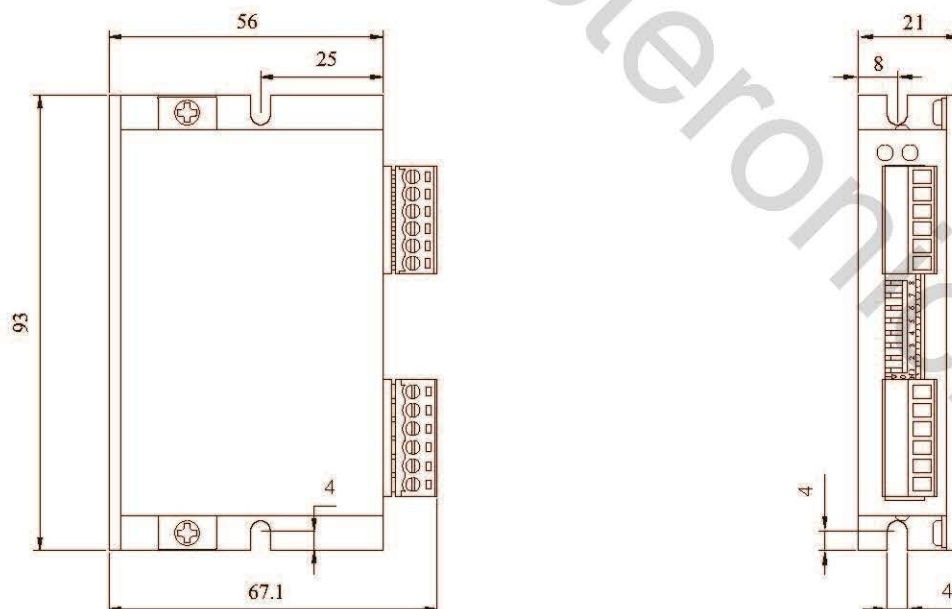
● Electrical parameters

Driver parameters	Minimum value	Typical value	Maximum value	Unit
Input voltage	12	24	50	VDC
Drive current	0.3	-	2.5	A
Input pulse frequency	1	-	1M	Hz
Input pulse width	250	-	5E+8	ns
Input signal voltage	3.6	5	24	VDC

● Environmental indexes

Cooling mode	Natural cooling or forced cooling
Use occasion	Avoid dust, oil stain and corrosive gas
Operating environment temperature	0~40℃
Highest environment humidity	90%RH (no condensation)
Storage temperature	-10 ~70℃
Maximum vibration	5.9m/S2 max

■ Mechanical dimensions and installation drawing



Driver interface and wiring diagram

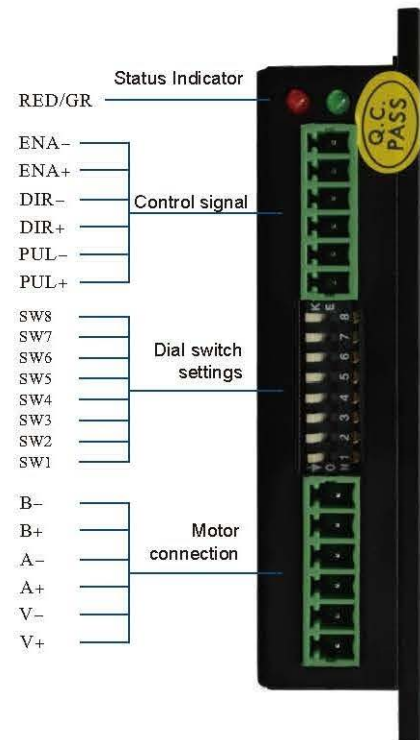
Power Supply and Motor Wiring

Name	Function
B-	Two phase Motor-B-
B+	Two phase Motor-B+
A-	Two phase Motor-A-
A+	Two phase Motor-A+
V-	Power Supply V-
V+	Power Supply V+: DC12V~50V

Please pay attention to the power connection order of the drive. Damage caused by incorrect connection order is not covered by the warranty.

Control signal interface

Name	Function
ENA-	Enable control signal: ENA+ is connected to high level of 5V~24V; each phase of the motor will be in a free state, no longer be controlled by the driver and no longer respond to the pulse signal. It is mainly used for debugging the machine.
ENA+	
DIR-	Direction control signal: high and low level pulse signals, high level of 5V~24V.
DIR+	
PUL-	Pulse control signal: effective pulse falling edge, pulse voltage of 5V~24V, maximum frequency of 2MHZ.
PUL+	



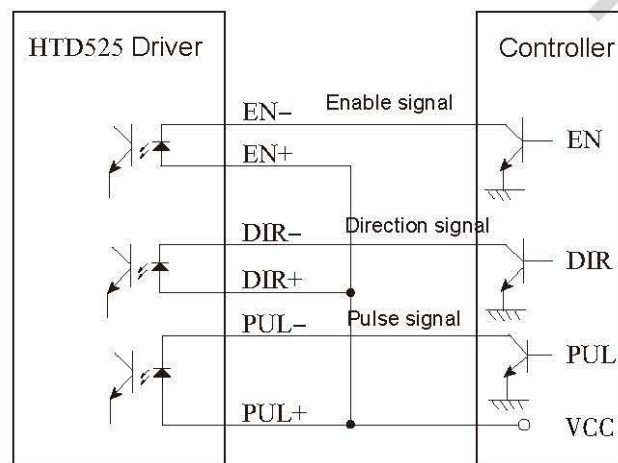
DIP switch setting

SW9 SW10 SW11

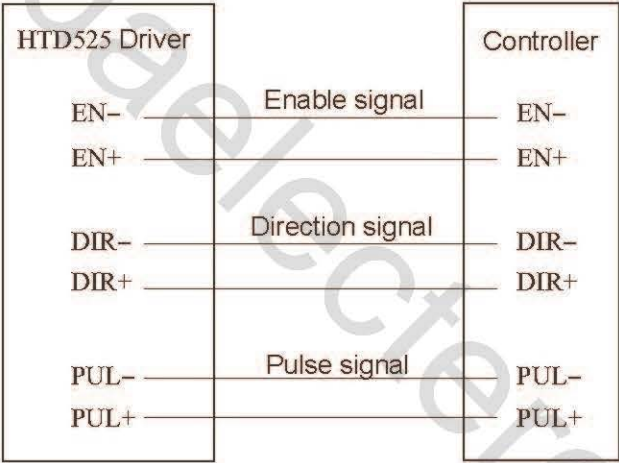
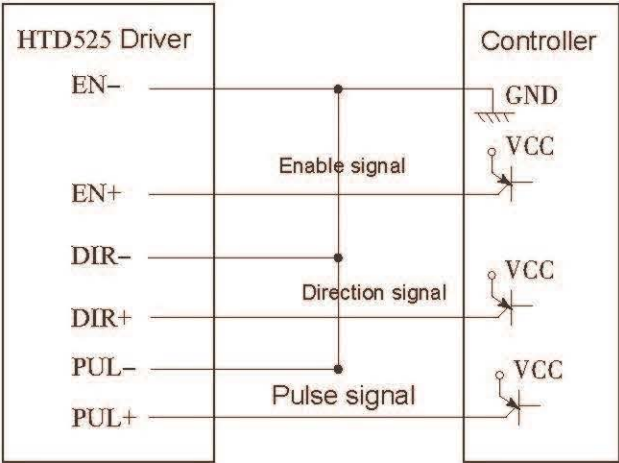


Control signal example diagram

Common anode



Common cathode



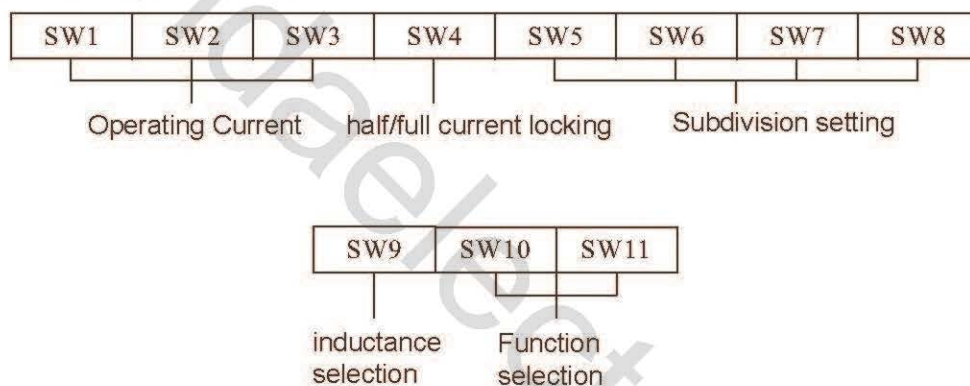
■ Status indication and operating parameter setting

● Status indication and precautions

Status/cause	Green light	Red Light				
Power-on	Normal	Not reliably connected to the motor	Motor may be damaged	Over voltage	Under-voltage	
In operation	Normal	Over-current phenomenon occurs	Motor may be damaged	Over voltage	Under-voltage	Over temperature

Precautions: It is not allowed to connect the LASD2 stepper motor driver with the power supply and turn on the power switch before the driver is connected with the motor. It is also not allowed to connect the positive and negative ports of the power supply inversely, otherwise the red light of the driver will be on or the stepper motor driver will be damaged!

● Operating parameter setting



● Current setting

For the LASD2 two-phase stepper motor driver, the peak current outputted by the output driver is setting through rotating dial switches. Under normal circumstances, the current shall be set as the motor rated current or the current less than the motor rated current, which will be determined according to the customer demand for output torque and motor heating value. If the demand for torque is large, the current shall be set relatively small. If the demand for heating value is small, the current shall be set relatively small.

Operating Current on peak	SW1	SW2	SW3
0.3A	OFF	OFF	OFF
0.5A	ON	OFF	OFF
0.8A	OFF	ON	OFF
1.2A	ON	ON	OFF
1.5A	OFF	OFF	ON
2.0A	ON	OFF	ON
2.2A	OFF	ON	ON
2.5A	ON	ON	ON

● Subdivision setting

For the LASD2 two-phase stepper motor driver, the subdivision value is set through rotating dial switches and a total of 16 subdivision settings can be choose.

Subdivision(RPM)	S W 5	S W 6	SW7	SW8
200	ON	ON	ON	ON
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
6400	OFF	ON	OFF	ON
12800	ON	OFF	OFF	ON
25600	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
25000	OFF	OFF	OFF	OFF

● Motor parameter selection and matching

In order to adapt to types of motors, and to achieve high-speed, low-speed vibration and low-noise performance when matched with the motor, the LASD2 two-phase stepper motor driver internally sets different PID parameters for different motor parameters that customer can choose.

Motor parameter matching is performed by SW9 dial switch, ON=small inductor motor, OFF=large inductor motor.

- The LASD2 two-phase stepper motor driver can perform two modes of pulse + direction and double pulse control. The pulse + direction is the input pulse signal always exists, and the direction is controlled by the high and low levels of the direction input. The double pulse means that both the pulse input and the direction input are pulse inputs, one is forward pulse input, and the other is reverse pulse input.

Note: When switching between single/double pulse, you need to turn off the power and power on again to take effect.

Setting selection by SW10 and SW11 DIP switches

Single pulse mode: SW10=OFF, SW11=OFF

Double pulse mode: SW10=ON, SW11=OFF

● Driver self-test

When the self-test is turned on, the motor will do a positive and negative rotation and then automatically return to the initial position.

Through self-test detection, it can be confirmed whether the power part of the driver is working normally, and whether the motor line connection is reliable or the like.

Note: External pulse signals are not accepted under self-test conditions.

Set selection by SW10 and SW11 DIP switches: SW10=OFF, SW11=ON